Material of a Thousand Uses

By William R. Ellis

The author wishes to express his appreciation for the cooperation shown by the Bakelite Corporation in providing material for the following article and lending the accompanying cuts.

BAKELITE is known as "the material of a thousand uses." This is not a mere advertising slogan, for there are more uses of Bakelite materials than it would be possible to mention in this article. If it were possible to enumerate these applications, the article would consist of nothing else. It may be best, therefore, to confine our description to those Bakelite products most likely to be encountered in everyday life. Every day we enjoy some luxury, work more efficiently, or accomplish some task with greater ease or in a shorter length of time through the use of Bakelite materials. Our previous article (which appeared in last month's issue) made clear that Bakelite Corporation produces only the raw or primary materials. These unfinished materials are sold to various concerns throughout the country, better described as Bakelite fabricators. Frequently these manufacturers employ their own trade names, such as Formica, Micarta, Fibroc, Dilecto, Synthane, Phenolite, etc. To be consistent, let us take up the uses of the six resinoid materials in the same order that they were discussed in the previous article.

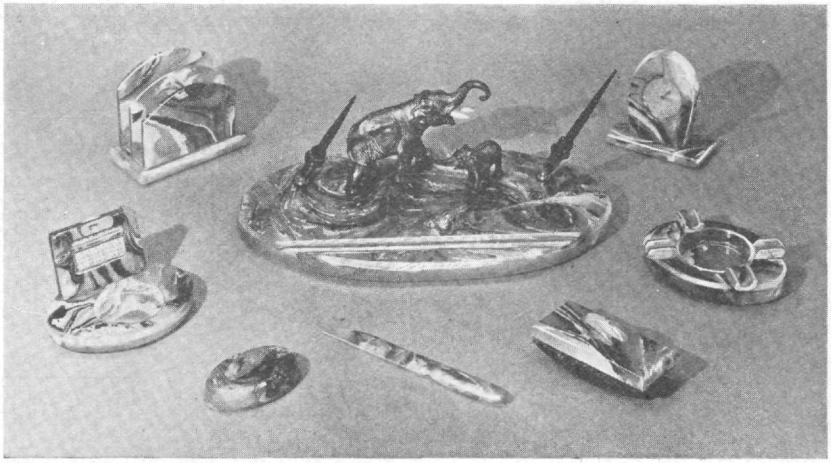
Products of the Transparent Material

Articles made from this material are among the most beautiful of all the Bakelite products. Various colors and distinctive mottled effects are possible. Among the specialties to which this material is adaptable are cigarette holders, pencil and pen barrels, pipe stems, automobile gear shift lever balls, all of which are unusually attractive in appearance. Because of the fact that this material is strongly resistant to chemicals it has been employed for graduates, beakers and bottles. Since it is unaffected by hydrofluoric acid it finds important service in the laboratory.

Products of the Molding Material

The molding material is also available in a wide range of colors and mottled effects. It is perhaps the most versatile of all the Bakelite materials, finding use in such widely separated fields as the radio, automobile, electrical, hardware, textile industries, etc. Metal parts are often embedded in the molded piece at the time of molding, simplifying assembly operations and frequently cutting down production costs. Makers of telephone, radio and electrical equipment are especially benefited in this regard. It is readily adaptable to mass production methods. In the case of certain instruments, which formerly required as many as fifteen machining and finishing operations, the mere closing and opening of the press turns out a better job when phenol resinoid molding material is used. By the use of multiple cavity molds the output per molding cycle can be increased. For example, nearly a gross of tooth-paste tube caps can be produced in a single operation.

An electrical organ, made by the John Compton Organ Company depends on Bakelite Molded for its insulation. Bakelite Molded clock cases properly designed have done much toward making the electrical timepiece a household feature. The material has been extensively employed in the telephone industry for receivers, transmitters, including the popular handset or European type telephone stand. Switch plates, attachment plugs, and other fitments are produced in this material.



A RESINOID DESK SET

Revolving table servers that will not scratch nor stain, automatic coin changing de-

vices, scientific apparatus, razors, radio receiver cases, electric fan bases and motor housings, typewriter cover plates, display stands, are molded completely or in part from Bakelite materials.

In the motor car industry we find Bakelite molding material employed for distributor heads, steering wheels, instrument panel fitments, door locking devices, and housings for push-button starters.

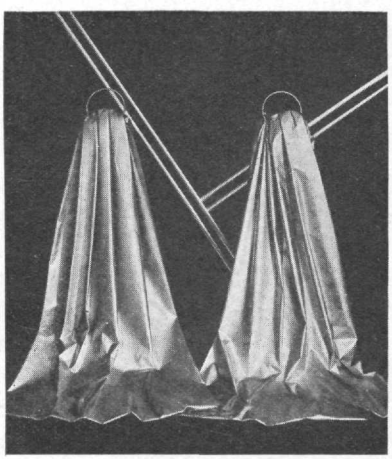
Automatic timers, blood pressure testers, dial indicating thermometers, thermostats, photo-electric cells are examples of some of the instruments in the construction of which Bakelite Molded plays an important role.

In the packaging field we find the material employed for powder and paste jars, physicians' carrying cases, bottle caps for cosmetic bottles, and, more recently, for wine and liquor bottles, perfume containers, cigarette boxes, and ladies' compacts.

Knobs for cooking utensils, made of special molding material, never get hot but remain cool to the touch at all times. A molded mechanical darner, which greatly simplifies the task of mending wearing apparel, has recently been introduced. Novelties produced from molding materials are also numerous. Lamps, book ends, pencil sharpeners, ash trays, and picture frames are a few typical example. Molded spectacle cases and binoculars furnish two examples of the many beautiful optical products employing phenol resinol in their construction. Games and toys, dental supplies, furnish other important applications. This list goes on without apparent end.

Laminated Products

The laminated stock finds nearly as many uses as the molding materials in many industries. It is employed extensively for wainscoating, table tops, bar tops and trim, baseboards, window sills, radio insulating parts and door trim. A variety of solid colors, natural wood finishes and marble grainings are available. The majority of automobiles on the road today are equipped with silent timing gears made from Bakelite Laminated material. These gears are stronger than cast iron. Because they resist corrosion and permit quiet operation of the timing gear train, they have found ready acceptance in the auomotive industry.



WATERPROOF CLOTH
Processed with Resinoid

Laminated material also provides braiding shuttles in the textile field and track insulation on electric railways.

Liquid Products

The baking type varnishes, lacquers, enamels, and cements are widely employed by industry. The varnishes find service as an impregnating material to insulate and strengthen electric coils and windings.

The resinoid lacquer provides a hard, transparent and corrosion-resistant coating for highly finished metal. It is at once protective and decorative, and consequently is employed extensively in hardware manufacture. The resinoid cement provides a tenacious, heat-resistant bond for joining metal, wood, rubber, glass, etc. It is also used for sealing lamp bulbs in their metal bases.

Synthetic Resin Paint Products

The synthetic resins have given the paint and varnish industry a new standard of durability. Paints, varnishes, and enamels of the air-drying type based on these resins provide finishes that are resistant to corrosion, water, oils, acids, alcohols, alkalies, inks, etc. In the marine industry, for boat refinishing, it has demonstrated the real meaning of enduring paint protection.

Uses of Special Resinoids

The chief advantage of grinding wheels bonded with Bakelite Resinoid is the greater speed at which they can be operated. The higher the speed, naturally the greater the production rate, conversely the lower the production cost. The resinoil bond provides a tenacious seal for the abrasive particles. It permits the wheels to operate coolly and without gumming.

Another important resinoid is suitable for denture purposes, as I have described in my previous article. There has been introduced recently a new flexible waterproof cloth processed with a newly developed Bakelite Resinoid. The cloth is available in colors, metallic finishes, and patent leather effects. The important applications are shower curtains, golf jackets, evening slippers, stage settings, table-runners, bridge table tops, and raincoats.

I have stated earlier that it would be impossible for me to enumerate all of the uses of Bakelite Resinoids in this brief article. I have described a few of the important uses so that you may get a general knowledge of the versatile service offered by the various Bakelite Resinoids. One is more than safe when he says, "Bakelite is a 'Material of a Thousand Uses'."

A survey of those attending the recent convention in Cincinnati of the American Ceramic Society showed that 97 alumni and 11 students of the Ohio State ceramic engineering department, and 20 alumni from other departments of the university attended. An Ohio State dinner met with great enthusiasm, with more than seventy men attending it.

An article entitled "Early Oil Days in Venezuela," written by Professor O'Rourke of the Mine Engineering Department, will be published in the March-April issue of the *Rig and Reel* magazine.